

Couplings



Presented By:

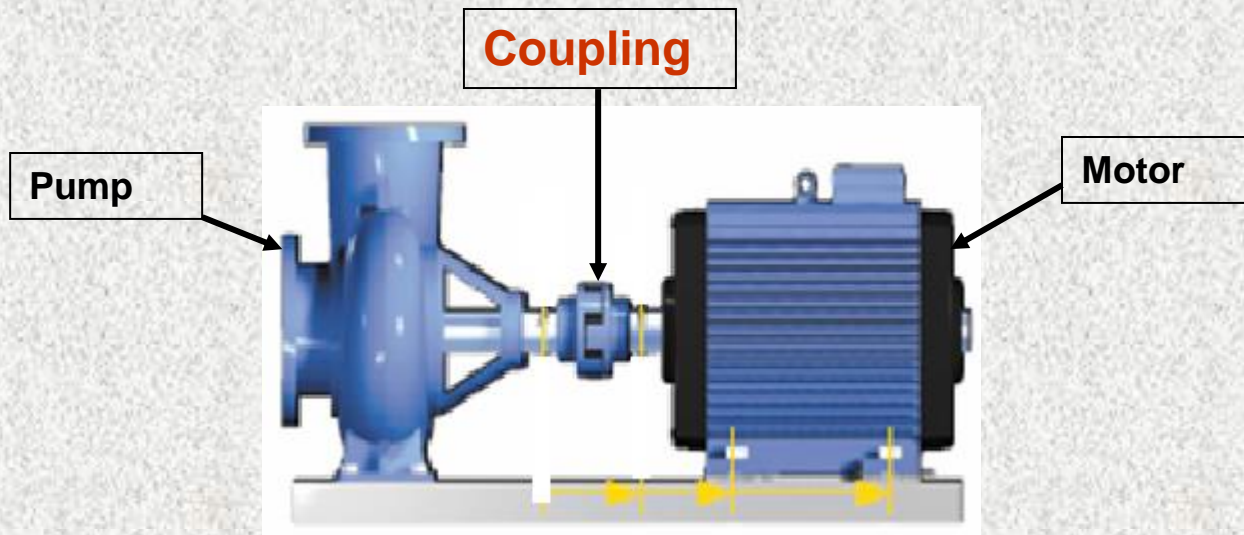
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Couplings

Coupling is a device used to connect two shafts together at their ends for the purpose of transmitting power



Uses of coupling

- To provide connection of shafts of units made separately
- To allow misalignment of the shafts or to introduce mechanical flexibility.
- To reduce the transmission of shock loads
- To introduce protection against overloads.
- To alter the vibration characteristics

Types of coupling

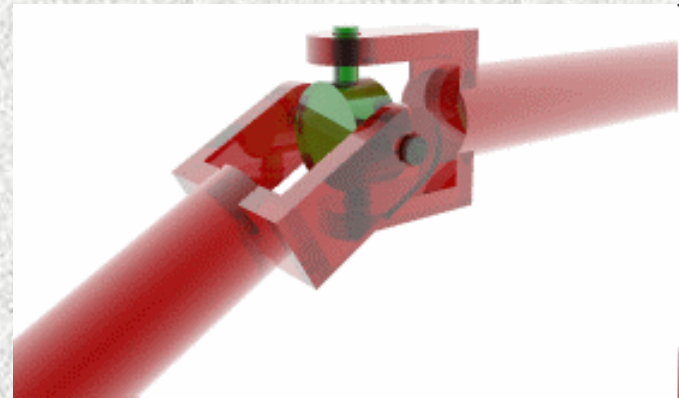
- Rigid
- Flexible
- Universal



Flexible coupling

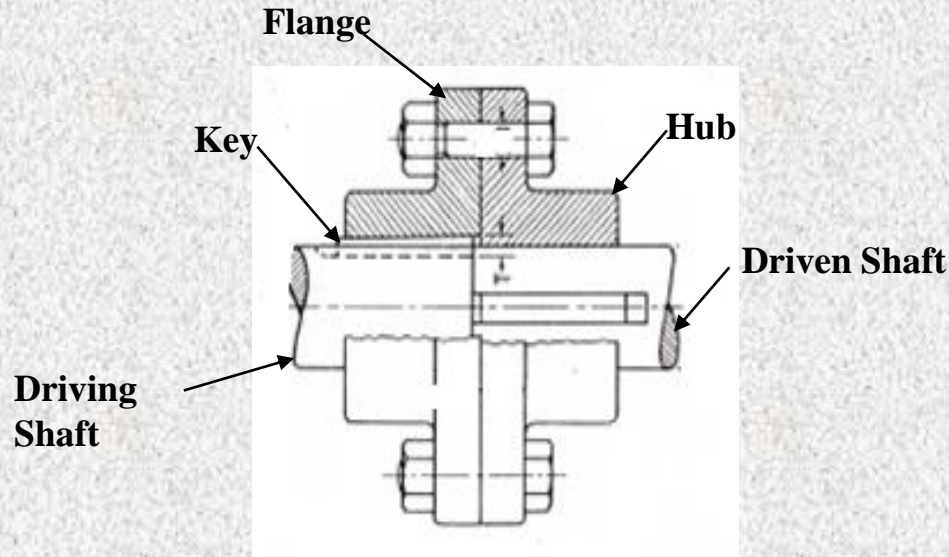


Rigid coupling



Universal coupling

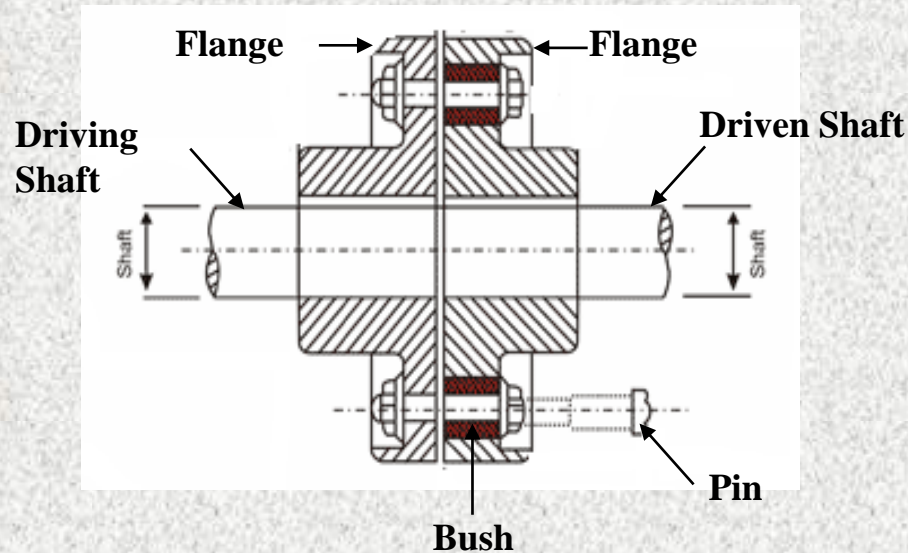
Rigid coupling



Flanged Coupling

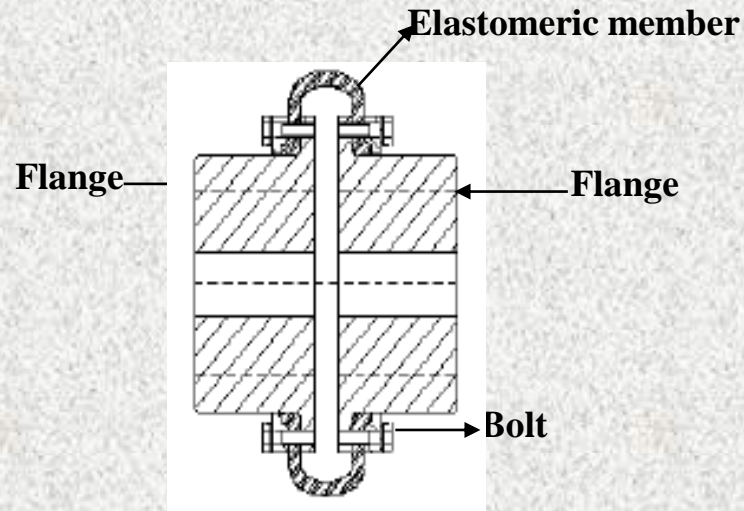
- Rigid couplings are used when precise shaft alignment is required
- Simple in design and are more rugged
- Generally able to transmit more power than flexible couplings
- Shaft misalignments cannot be compensated

Flexible Coupling



- A flexible coupling permits with in certain limits, relative rotation and variation in the alignment of shafts
- Pins (Bolts) covered by rubber washer or bush is used connect flanges with nuts
- The rubber washers or bushes act as a shock absorbers and insulators.

Elastomeric coupling (Tyre Coupling)



- An assembly of components designed to connect axially oriented shafts in order to provide power transmission
- Able to accommodate shaft misalignment through elastomeric materials

Advantages and Limitations

Advantages

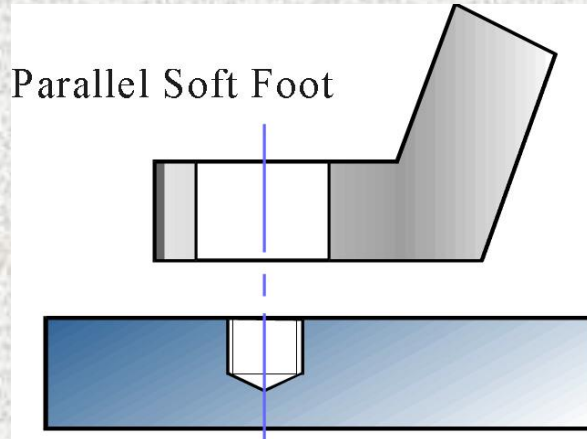
- Torsionally stiff
- No lubrication or maintenance
- Good vibration damping and shock absorbing qualities
- Less expensive than metallic couplings
- More misalignment allowable than most metallic couplings

Limitations

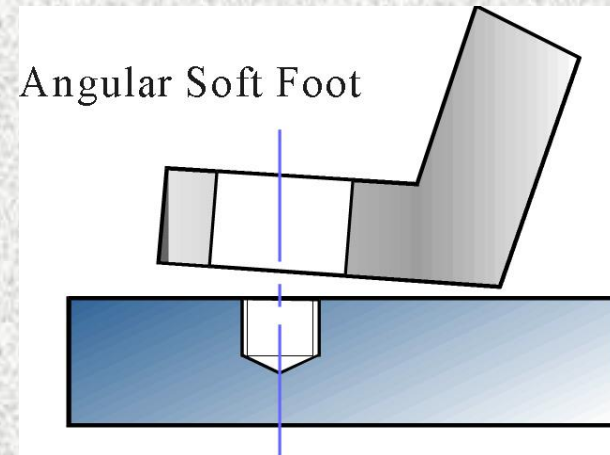
- Sensitive to chemicals and high temperatures
- Usually not torsionally stiff enough for positive displacement
- Larger in outside diameter than metallic coupling
- Difficult to balance as an assembly

Soft Foot

Soft foot is a condition in which one of the feet does not sit flat on the base

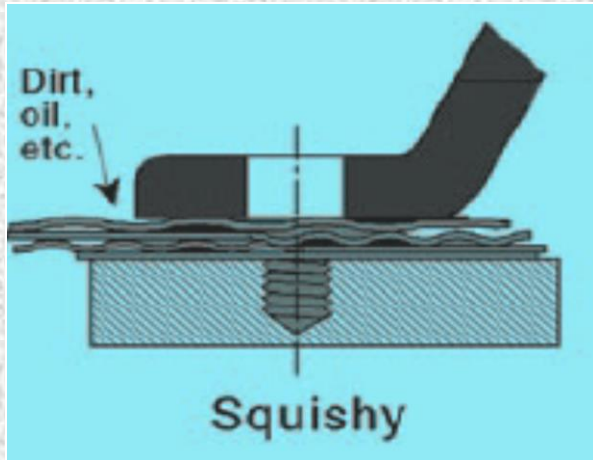


One leg is too short or one base plate-mounting pad is not level with the other three

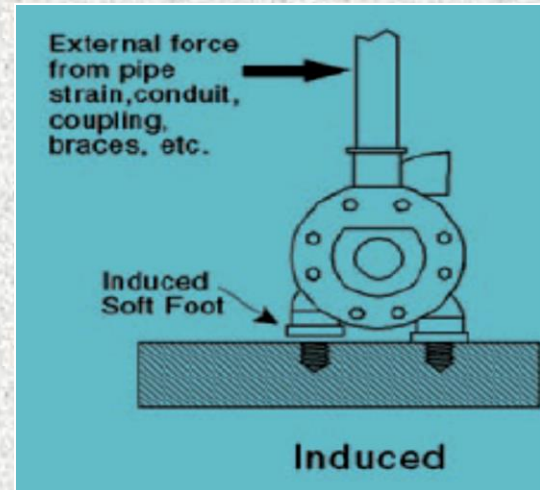


The bottom of one foot is not parallel with the base

Soft Foot



Dirt; grease; paints; rust, bent or burred shims; or too many shims are found under the foot



External forces on one end of the equipment causes uneven settlement on the base

Procedure to check for Soft Foot

- **Position the machine on its bed plate**
- **Tighten all the bolts to its normal torque value.**
- **Install DTI with magnetic base between bed plate and foundation, on one of the four feet.**
- **Move indicators to 12 o'clock position, depress indicators and then zero.**
- **Loosen one base bolt. If indicator moves away from zero, record the positive reading**
- **Place the amount of shims that will slide under that foot.**
- **Retighten bolt and make sure the dial indicator needle does not move.**
- **Repeat this procedure for the remaining feet.**